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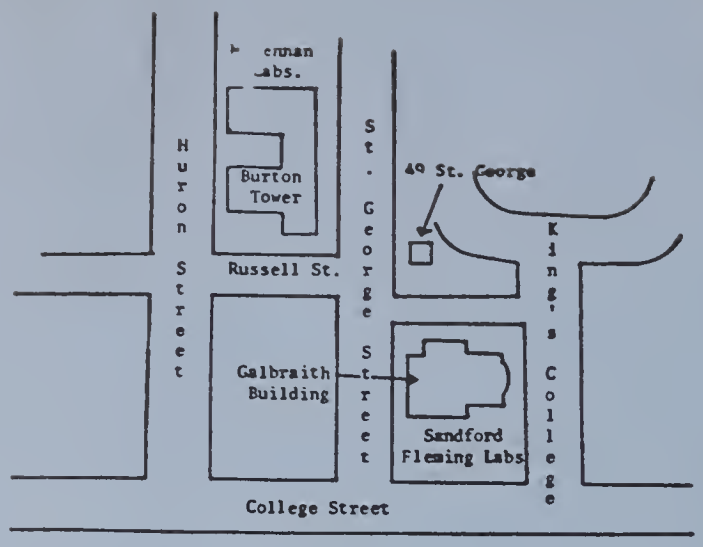
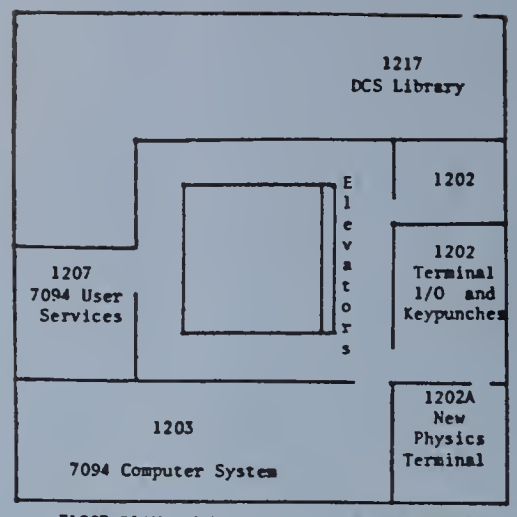
University of Toronto COMPUTING NEWS

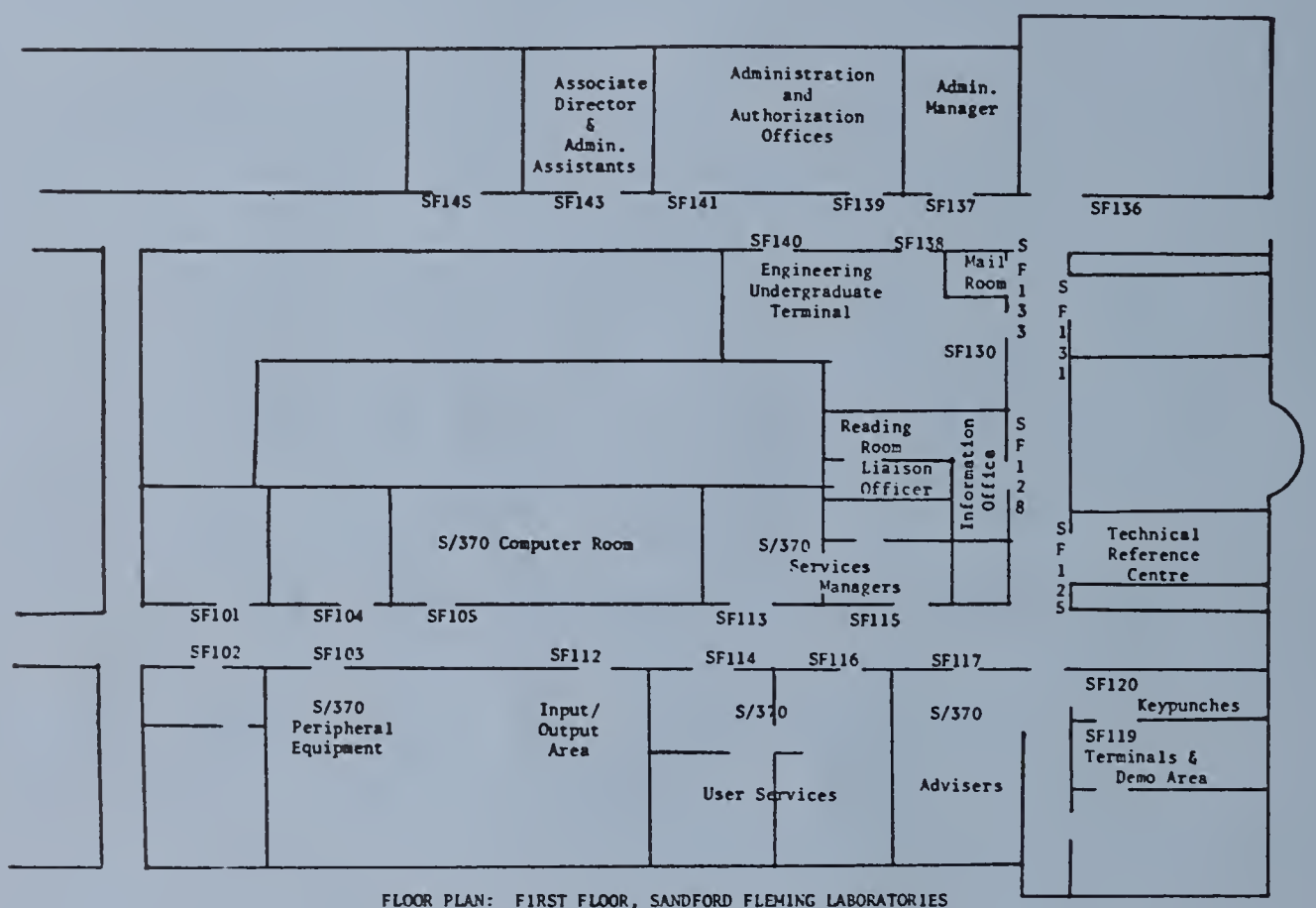
March 74 No. 110



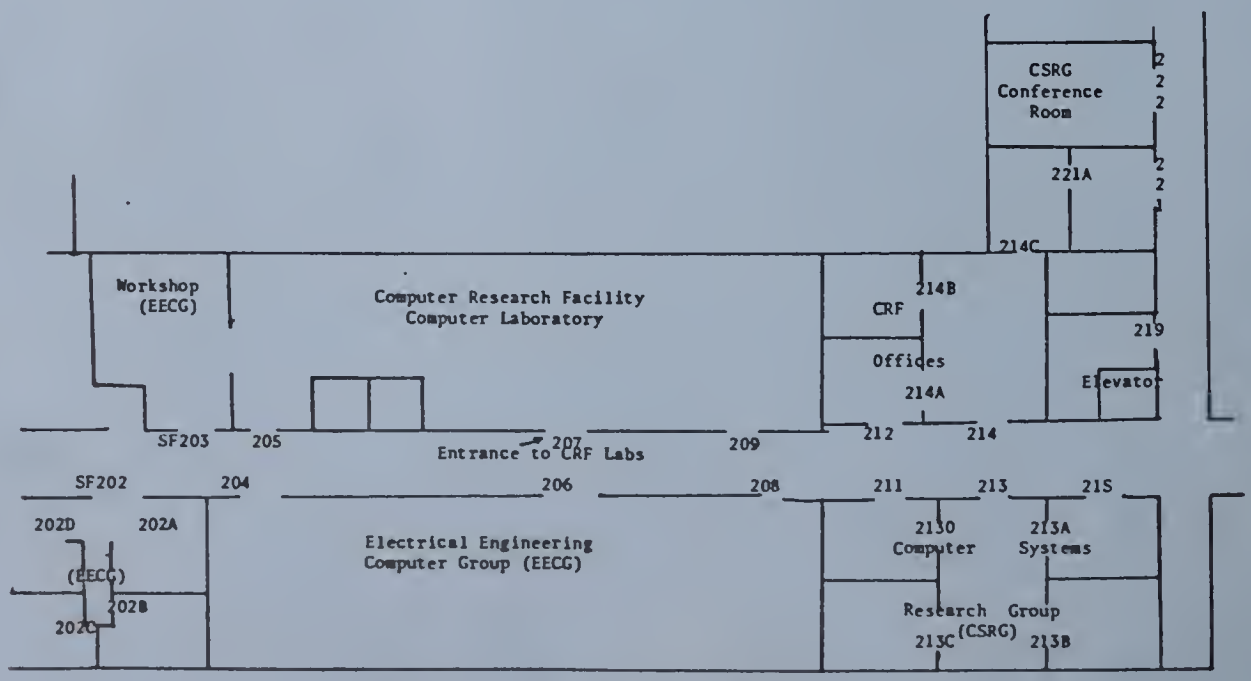


FLOOR PLAN: TWELFTH FLOOR, BURTON TOWER

UNIVERSITY OF TORONTO COMPUTER CENTRE



FLOOR PLAN: FIRST FLOOR, SANDFORD FLEMING LABORATORIES



FLOOR PLAN: SECOND FLOOR, SANDFORD FLEMING LABORATORIES

PLANNING FOR THE FUTURE

The function of the Computer Centre is to provide the University's teaching and research community with the computing services which it requires, and I have been assigned to assess user groups' requirements, and to report to the Director. Questions such as "Is there sufficient demand to justify a DEC System 10 or Xerox computer for interactive work?" and "Where do the 7094 users go when that machine eventually expires?" have to be answered. Many of the users I have spoken to feel they would like to be brought up to date on the systems available from the major mainframe manufacturers: IBM, DEC, Xerox, Honeywell, Univac, Burroughs and CDC; so each of these companies is being asked to present a seminar on its systems. Xerox talked about its new 560 system on February 26 (see below). DEC expounded the virtues of its System-10 on March 19, and other manufacturers will follow over the next few weeks; the times and places will be posted at user terminals and in the 'Hot News'.

Anyone having specific questions for manufacturers' representatives or requiring demonstrations of time sharing, etc., or access to manuals, can contact me on local 4923.

John Phillips

XEROX COMPUTER SEMINAR

On February 26, representatives of Xerox of Canada's Computer Division presented a seminar on the newly announced Xerox 560 computer system and its associated operating system, Control Program Five (CP-V). The CPU speed places the power of this system somewhere between that of the S/370 Models 145 and 158. The 560 and CP-V were designed to provide all variations of data processing modes simultaneously - local batch, remote batch, interactive time sharing, transaction processing and real-time. It has decentralized architecture which allows central control of up to 22 processors, and thus can be adapted to the user's applications, with a mix of computing and input/output processors to produce optimum data rates and throughput. Key features include integrated circuit (IC) control memory, memory expansion to 256K 32 bit words, virtual memory, upward compatibility from Sigma series computers, four register blocks for rapid context switching, four real-time clocks, 14 internal, and up to 48 external priority interrupts and memory access protection. Provision is made for on-line trouble shooting, enabling both hardware and software testing to be done from a remote location.

Xerox Control Program Five (CP-V) is a comprehensive multi-use, virtual memory operating system for use with Xerox 500 series or Sigma computers. It offers five concurrent modes of operation:

Cont'd...

XEROX SEMINAR Cont'd...

* Multiprogrammed Batch
* Remote Batch
* Timesharing
* Transaction Processing
* Real Time

Up to 16 batch jobs and 128 time sharing users may be accommodated concurrently. A full range of language processors is available to the time sharing and batch users, and there are some very nice run time debugging aids.

The real-time facility under Xerox CP-V provides several modes of program control of real-time processes from micro-second response to an environmental stimulus, to monitor scheduling of programs in response to system events or operator request. Real-time programs may be authorized to use privileged operations such as: direct control of I/O channels and process hardware, exclusive use of portions of real memory, and pre-emptive control of all memory and CPU.

Xerox APL runs as a standard processor under CP-V and as such is available to any user, whether on a time-sharing terminal or local or remote batch. Special mnemonics are provided for card input and terminals not supporting the APL character set.

In addition to the 'standard' primitive functions, Xerox APL provides functions for I/O to files which are a standard format under CP-V and may be used by FORTRAN or COBOL programs. DEBUG facilities have also been extended and program control of run-time errors is provided.

John Phillips

PERSONNEL CHANGES

Good luck to Lynda Ramage and Joyce King of CRF as they leave the Centre this month. We wish them every success in their new endeavours.

As we say goodbye to Lynda and Joyce, we bid welcome Lee Manning, a new computer operator for System/370; Teresa Chan, a new computer operator for 7094 services and Ernst Goetze a new programmer for 7094 services. Jaime Menendez has joined our forces as a programmer and is working for Dr. Wilson. We hope each and all enjoy working at the Centre.

Trudy Holland

COMPUTER ASSISTED LEARNING SEMINAR AT ERINDALE COLLEGE

The Erindale College CAL Group held a four day Seminar on Computer Assisted Learning (CAL) during reading week (February 18-21, 1974). The Seminar was a marked success, with representatives from many departments from the University of Toronto, as well as from the University of Guelph, I.B.M., O.I.S.E., the University of Ottawa, and Queen's University at Kingston. Topics of interest included a technical description of APLCAT, the author language/CAL system developed at Erindale College; a school for those interested in using APLCAT, which was aimed at novice programmers; descriptions of existing and planned courseware; and sessions on the future and uses of CAL.

Throughout the Seminar the attendees were encouraged to gain "hands on" experience with CAL material, and many did write small lesson modules.

Further events of this nature are being planned. Developments will be announced in the newsletter.

Ford Clancy

IBM MANUALS FOR COURSES

Would course instructors requiring IBM manuals for their Summer Session courses please make arrangements with the UTCC Information Office (928-2694) to stock the manuals as soon as possible.

Bill Greene

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HOURS OF SERVICE -- EASTER WEEKEND

The following hours of service will be in effect for System/370 Services users during the Easter weekend:

	April 12 (Friday)	April 13 (Saturday)	April 14 (Sunday)
Sandford Fleming Terminal (SF112)	closed	9am - 5pm	9am - 5pm
EUT/ASUT	closed	9am - 5pm	9am - 5pm
AST	closed	9am - 5pm	9am - 5pm
TSO	closed	9am - 5pm	9am - 5pm

Normal Hours of Service will resume on Monday, April 15.

Users of other terminals should consult the Terminal Co-ordinator for hours of service on Saturday and Sunday at these sites.

Janet Campbell

WHAT IS VS?

This is the first of a series of several articles introducing the new IBM operating system OS/VS2. As many readers may know, S/370 Services currently runs IBM operating system 370, MVT Release 21.7. This release of OS/370 is, however, the last release of "OS" as such, and to continue to receive IBM support and to allow room for growth and expansion of new features, S/370 is considering implementing VS2, Release 2.

"VS" means 'virtual storage'. The design philosphy is that the size of any particular user's program is distinctly separated from the physical hardware available. Aside from continued IBM support and room for expansion, S/370 hopes to gain other additions for the user:

a) expanded throughput as a result of reduction of core fragmentation;

b) much larger region sizes for user programs.

The above affect most users and there are, of course, other features. Under VS2 each user has available an address space analogous to an MVT region of 16,384K. The advantages of this for users are obvious. As well as being a change in software techniques, VS2 is also implemented through major modifications to the computer hardware. The hardware changes required under VS and the new concepts of VS will be subjects discussed in this series. You are invited to write in to COMPUTERNEWS with any questions you might have about VS and as a part of this series we will provide answers to your questions.

Herb Kugel

S/370'S HOW TO SERIES

You are probably aware of at least one of the HOW TO manuals prepared by S/370 Services, but do you know that there is now a series of these manuals?

The HOW TO manuals are a result of S/370's belief that users are capable of performing for themselves many of the mechanical tasks that are involved in preparing a job for the system. Self-service means inexpensive, fast, reliable service. For self-service to work, S/370 had to prepare means by which users could learn how to use necessary equipment. One of the means is the HOW TO series.

The purpose of the HOW TO's is to inform users of the basic techniques of how to use an unfamiliar piece of equipment. Step-by-step explanations are accompanied by examples and photographs.

At present the series contains four manuals. These are:

1. HOW TO USE
   AN IBM 029 KEYPUNCH
   AN IBM 2501 CARD READER
   AN IBM 1403 LINE PRINTER

2. HOW TO USE
   AN IBM 029 KEYPUNCH
   AN IBM 2560 CARD READER/
   PUNCH
   AN IBM 2203 LINE PRINTER

3. HOW TO USE
   A REMCOM CARD READER
   A REMCOM LINE PRINTER
   A REMCOM TERMINAL STARTUP/
   PROCEDURE
   A REMCOM CARD PUNCH

4. HOW TO USE
   AN IBM 029 KEYPUNCH DRUM

The manuals can be obtained free of charge from the Terminal Co-ordinators or from the Information Office in Sandford Fleming 128.

Don Gibson

TROUBLE SHOOTING-- IEHMOVE AND DDNAMES

IEHMOVE

Several users have been experiencing difficulty using IEHMOVE to unload, move or copy datasets to and from multifile tapes. It should be kept in mind that IEHMOVE does not position a tape volume through the JCL LABEL parameter but through the utility control statements specified in the IEHMOVE program (for example, unload two partitioned datasets onto magnetic tape so that they are to be the 14th and 15th files on the tape). Assuming that the datasets currently reside on a 2314, TIC###, are named USER.MYLIB1 and USER.MYLIB2, and are to be copied to tape N1234, the JCL would be:

...Cont'd

IEHMOVE Cont'd...

```
//    EXEC PGM=IEHMOVE
//SYSPRINT DD SYSOUT=A
//SYSUT1   DD UNIT=SYSDA,SPACE=(TRK,(1,1))
//FROM     DD UNIT=2314,DISP=SHR,VOL=SER=TIC###
//TO       DD UNIT=3400-3,LABEL=(1,SL),DISP=OLD,
//         DCB=(DEN=3,RECFM=FB,LRECL=80,BLKSIZE=800),
             VOL=SER=N1234
//SYSIN    DD *
         COPY PDS=USER.MYLIB1,FROM=2314=TIC###,      x
              TO=3400-3=(N1234,14),TODD=TO
         COPY PDS=USER.MYLIB2,FROM=2314=TIC###,      x
              TO=3400-3=(N1234,14),TODD=TO
/*
```

DDNAME

Another problem which has occurred is a result of incorrectly using the DDNAME feature during concatenation attempts.

```
WRONG!!

//     EXEC FORTLEGO
         --
         --
         --
//GO.SYSIN DD DSN=USER.DATASET1,DISP=OLD
//         DD DSN=USER.DATASET2,DISP=OLD

WRONG!!
```

The reason that the above example is wrong is that within the catalogued procedure FORTLEGO is

//FT05F001 DD DDNAME=SYSIN

and as such it cannot be concatenated. In this example there would not be any data obtained from USER.DATASET2. For complete details see OS/360/370 Release 21.7 JOB CONTROL LANGUAGE MANUAL, pages 40-41.

The proper way to concatenate the above example is:

```
RIGHT!!

//     EXEC FORTLEGO
         --
         --
         --
//GO.FT05F001 DD DSN=USER.DATASET1,DISP=OLD
//            DD DSN=USER.DATASET2,DISP=OLD
```

Herb Kugel

TAPE-TIPS

As most of the System/370 users know, the tape library is in the protection racket. Unlike some organizations we do not apply pressure or make any charge.

Our service will protect your tape(s) from accidental over-writing. "Read-only" tapes are stored in red seals and only upon written request from the owner will the seal be changed to the normal white write-enable status. Users must be advised, however, that this does not protect a tape from tape drive malfunctions or butterfingers. If your data is valuable enough to protect from an accidental rubbing out, it should be backed up onto another tape.

A phone call to the 370 Tape Librarian is sufficient to protect your tape or to rent extra tapes for backup. Let your fingers do the walking!

Phone Ms. Sylvia May, Tape/Disk Librarian, at 7319, Room 106, Sandford Fleming.

Sylvia May

LONGER LIFE FOR 2741 TERMINAL RIBBONS

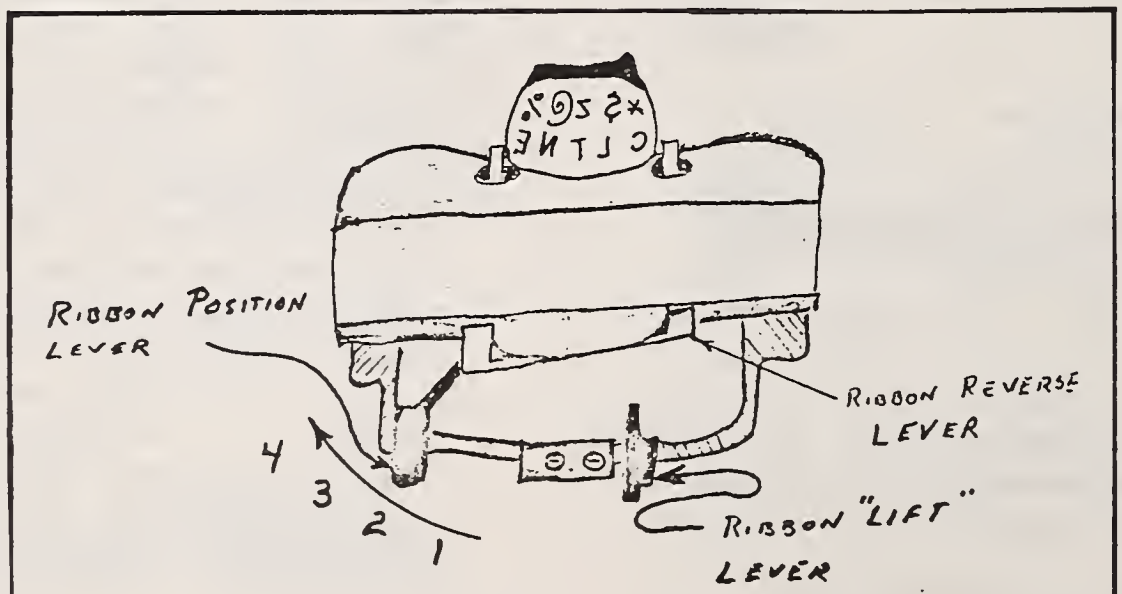
(Editor's note: The following article was inspired by a similiar article in the Northern Illinois University's COMPUTER NEWS, January 31, 1974, Vol. 7, No. 1.)

The IBM 2740/2741 COMMUNIATION TERMINAL OPERATOR'S GUIDE recommends:

> "A fabric ribbon will provide the longest life if the ribbon-position lever is changed frequently (see figure). This will allow the ribbon to re-ink itself during these changes. The first setting, on the right, is used for cutting stencils. Settings two, three, and four move the typing line to the top, middle, and bottom portions of the ribbon. If you wish to reverse the direction in which the ribbon is winding, move the ribbon-reverse lever to the opposite side."

Also, ribbon changing can be facilitated by moving the ribbon "Lift" lever from left to right.

Don Gibson



RIBBON CARRIER 2741 TERMINAL

(figure 1)

S/370 RELIABILITY

The uptime percentage for February, 1974 was 98.1 and the number of unscheduled IPL's per day was 1.25. The scheduled hours of production for February totalled 464.

Last Year's Comparative Figures

	% Uptime	Unsched IPL's/Day		% Uptime	Unsched IPL's/Day
Jan 73	96.8	0.87	Jan 74	97.0	1.37
Feb 73	98.3	1.18	Feb 74	98.3	1.25
Mar 73	97.8	1.16			
Apr 73	97.1	1.39			
May 73	98.5	1.20			
Jun 73	98.5	1.70			
Jul 73	99.4	0.37			
Aug 73	97.6	1.13			
Sep 73	86.8	3.63			
Oct 73	95.6	1.83			
Nov 73	98.1	0.93			
Dec 73	98.6	0.62			

The percentage breakdown of total system downtime for February was: Hardware-246 minutes (45.9%); Software-93 minutes (17.5%); Others-196 minutes (36.6%). The major events contributing to these downtime totals were as follows:

February 3/5/12/16: A total of 288 minutes of downtime were attributed to multiple bit errors in Itel storage, and the corrective maintenance required to resolve these errors. On one occasion, a multiple bit error caused an I/O error on the spool volume when a checkpoint record was badly written. This resulted in the loss of several HASP jobs. Improved maintenance procedures have been implemented in an attempt to curtail further occurrences of unacceptable Itel reliability.

February 6: 25 minutes of downtime were attributed to a power failure in the main building causing our motor generator to drop power.

February 28: 18 minutes of downtime were attributed to a software problem where the system would enter a 100% supervisor loop after low core (nucleus) had been overlaid. This problem has yet to be resolved and a fix is currently under investigation by IBM.

All other downtimes were of a minor variety and equally distributed among hardware, software, and others.

Dave Rauch

S/370 DOWNTIMES DURING FEB 74

DAY		RELOADS	DOWNTIME	TIME OF DAY (HOURS) 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
F	1	2	12	H H
S	2	0	0	
S	3	0	20	II
M	4	1	10	H
T	5	4	21	S S S S
W	6	5	51	S HHH H
T	7	0	0	
F	8	3	11	S S
S	9	0	0	
S	10	0	0	
M	11	3	22	S S S
T	12	4	35	S I H HH
W	13	1	11	I S
T	14	0	0	
F	11	0	0	
S	16	2	240	IIIIIHHHHHHHHH
S	17	0	0	
M	18	3	10	H S S I
T	19	0	0	
W	20	0	0	
T	21	1	7	O
F	22	2	10	S O
S	23	0	10	S
S	24	0	0	
M	21	0	0	
T	26	1	5	S
W	27	0	0	
T	28	4	43	I H O H S

LEGEND : H FOR HARDWARE
S FOR SOFTWARE
O FOR OPERATIONAL
U FOR UNEXPLAINED
I FOR LATE IPL

STATISTICS

TOTAL SCHEDULED HOURS OF PRODUCTION : 660
TOTAL DOWNTIME (MM) : 131 , AVG/DAY : 19.11 , AVG/PROD HOUR : 0.50
TOTAL REIPL'S : 35 , AVG/DAY : 1.21
DOWNTIME RATE IS : 1.92 PERCENT OF SCHEDULED PRODUCTION HOURS

ALL HSJS SUMMARY FOR 2/02/74 TO 28/02/74

PROCESSOR		#JOBS	% TOTAL	#JOBS	TIME 0 1100 2200 3300 4400 5500 6600 7700
WATFIV	-W	84491	(54%)	902	0 WWWTCCCG
SPITPCL	-T	6799	(5%)	1072	WWWTCCCG
PL/C	-C	36468	(23%)	939	1 WWWTCCG
UTILITY	-U	5239	(3%)	927	WWWTCCCG
ALGOL	-G	7197	(4%)	767	2 WWTCCG
PLUTO	-P	1540	(0%)	628	WWCCG
ASMG	-A	6752	(4%)	457	3 WTCG
WATBOL	-B	5448	(3%)	362	WCG
SIMSCR	-S	190	(0%)	389	4 WCUG
ASSIST	-(	0	(0%)	303	WC
LISP	-L	35	(0%)	280	5 WCG
OTHER	-?	0	(0%)	286	C
OTHER	-?	0	(0%)	161	6
				59	
				0	7
				13	
				856	8 WWWCC
				2245	WWWWWWTCCCCUGA
				3669	9 WWWWWWWWWWWTCCCCCCUGAB
				4266	WWWWWWWWWWWWWWTTCCCCCCCCCCUGGAB
				4265	10 WWWWWWWWWWWWWWWWTTCCCCCCCCCUGGAAB
				4749	WWWWWWWWWWWWWWWWTTTCCCCCCCCCUGGPAAAB
				5696	11 WWWWWWWWWWWWWWWWWWTTCCCCCCCCCCUUGGAAAAB
				6068	WWWWWWWWWWWWWWWWWWWWTTCCCCCCCCCCCUUGGPAAAAB
				6529	12 WWWWWWWWWWWWWWWWWWWWWTTTCCCCCCCCCCUUGGPAAAB
SHIFT	# JOBS	% TOTAL		6935	WWWWWWWWWWWWWWWWWWWWWWTTTCCCCCCCCCCUUGGPAABB
0 - 8	7545	(4)		7092	13 WWWWWWWWWWWWWWWWWWWWWWWTTTCCCCCCCCCCUUGGAAAB
8 - 4	85631	(57)		7640	WWWWWWWWWWWWWWWWWWWWWWWWTTTCCCCCCCCCCCCCUUGGAAABB
4 - 12	58763	(37)		7015	14 WWWWWWWWWWWWWWWWWWWWWWWWTTTCCCCCCCCCCCCCUUGGPAAAB9
				7517	WWWWWWWWWWWWWWWWWWWWWWWWWTTTTCCCCCCCCCCCCCUUGGPAAABB9
113465 JOBS (72%) WERE RUN FROM 10 AM TO 7 PM				7643	15 WWWWWWWWWWWWWWWWWWWWWWWWWWTTTCCCCCCCCCCCCCCCUUGGPAAAAB
				8246	WWWWWWWWWWWWWWWWWWWWWWWWWWTTTTCCCCCCCCCCCCCCCCUUGGPAAABB
				7769	16 WWWWWWWWWWWWWWWWWWWWWWWWWWTTTTCCCCCCCCCCCCCCUUGGPAAABB
				7553	WWWWWWWWWWWWWWWWWWWWWWWWWWWTTTTCCCCCCCCCCCCCCUUGGGPAAABB
				5175	17 WWWWWWWWWWWWWWWWWWWWWWWTTCCCCCCCCCUGGAAB
				4828	WWWWWWWWWWWWWWWWWWWWWWTTTCCCCCCCCCUGGAAB
				4509	18 WWWWWWWWWWWWWWWWWWWTTCCCCCCCCCUGGPAAB
				4236	WWWWWWWWWWWWWWWWWWTTCCCCCCCCCUGGPAAB
				3864	19 WWWWWWWWWWWWWWWWWTTCCCCCCCCUGAAB
				4076	WWWWWWWWWWWWWWWWWTTCCCCCCCCUGGPAAB
				4251	20 WWWWWWWWWWWWWWWWWWTTCCCCCCCCCUGGAAB
				4002	WWWWWWWWWWWWWWWWWWTTCCCCCCCCUGGAAB
				3960	21 WWWWWWWWWWWWWWWWWWTTCCCCCCCCCUGGAAB
				4074	WWWWWWWWWWWWWWWWWWTTTCCCCCCCCCUUGGGAAB
				239	22 WWC
				78	W
				61	23 W
				108	W
TOTAL		156159			

HSJS MONTHLY STATISTICS

During February 1974, 156,159 jobs were processed compared with 140,664 jobs for February 1973. This increase was 9.92%; ending the long term increases of 30% or more which occurred during the months of September 1973 to January 1974.

Mark Tapia

HSJS RESOURCE USAGE BY PROCESSOR FOR 1/02/74 TO 28/02/74

		TOTAL #JOBS	TOTAL CPU	TOTAL CARDS	TOTAL LINES	AVG CPU*10	AVG CARDS	AVG LINES
WATFIV	-W	84491	70547	8399478	11619501	8	99	137
SPITBCL	-I	8799	10344	1238585	1862672	11	140	211
PL/C	-C	36468	53123	4202154	8517397	14	115	244
UTILITY	-U	5239	896	732159	867019	1	139	165
ALGOLW	-G	7197	7849	1304843	1805735	10	181	250
PLUTO	-P	1540	2781	143031	239908	18	92	155
ASMG	-A	6752	9698	664722	1604406	14	98	237
WATBCL	-B	5448	8356	1325947	1211239	15	243	222
SIMON	-S	190	53	4739	12227	2	24	64
ASSIST	-I	0	0	0	0	0	0	0
LISP	-L	35	9	3271	6099	2	93	174
OTHER	-?	0	0	0	0	0	0	0
OTHER	-?	0	0	0	0	0	0	0
TOTAL		156159	163656	18018929	28146203	10	115	180

DOWNTIME REPORT ON 370 FOR FEB 74

DAY	REIPL	DNTIME	REIPLS(FREQ) // DOWNTIME (MN) 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100
F 1	7	12	□□••••••••••
S 2	0	0	
S 3	0	20	••••••••••••••••••••
M 4	1	10	□••••••••••
T 5	5	25	□□□□□••••••••••••••••••••••••
W 6	5	55	□□□□□••
T 7	0	0	
F 8	2	11	□□••••••••••
S 9	0	0	
S 10	0	0	
M 11	3	22	□□□••••••••••••••••••••
T 12	4	35	□□□□••••••••••••••••••••••••••••••••
W 13	1	11	□••••••••••
T 14	0	0	
F 15	0	0	
S 16	2	240	□□•••••••••••••••••••••••••••••••••••••••

APL PUBLIC LIBRARY DOCUMENTATION

The descriptive text contained in each APL Public Library Workspace has been reproduced in printed form and is now available from the Information Office (SF 128) at a nominal charge. Any errors in the documentation should be reported to Mr. R. Thompson, 928-2225.

Sam Goldfarb

INTERACTIVE SYSTEMS RELIABILITY

The uptimes achieved for the month of February for each of APL, ATS, and CPS were 98.85%, 98.86% and 98.77% respectively. The total number of scheduled hours of operation during the period February 1 through February 28 was 454. In addition to the scheduled hours of operation, APL, ATS and CPS were also available during approximately 107 hours of unscheduled weekend time.

The following table shows the time lost out of scheduled hours of production due to system failures for each of the systems: nine unscheduled IPL's were required as a result of the failures.

Kam Jain

DATE	DOWNTIME (minutes)			REASON
	APL	ATS	CPS	
Mon. Feb. 4	13	15	17	*APL Slowdown (SOFTWARE)
Tue. Feb. 5	6	8	10	*Channel Error (HARDWARE)
Tue. Feb. 5	10	12	12	IPL Late due to IBM Maintenance
Wed. Feb. 6	133	135	137	*Power Failure & Multiplexor Ch. (HARDWARE)
Thu. Feb. 7	39	12	15	*APL File Subsystem EC!! (SOFTWARE)
Mon. Feb. 11	10	15	18	*Induced by C.E. while testing 3705 (HARDWARE)
Tue. Feb. 12	75	73	81	*Disc Drive Problems (HARDWARE)
Sun. Feb. 17	12	20	21	*APL Slowdown (SOFTWARE)
Wed. Feb. 27	9	11	13	*Solid System on Test I/O (HARDWARE)
Wed. Feb. 27	5	7	9	*Solid System on Test I/O (HARDWARE)
Total	312	308	333	*IPL Required

System Failures February 1 to February 28, 1974

	ROOM	PHONE 928-
DIRECTOR		
John C. Wilson	49 St.Geo	6496
ASSOCIATE DIRECTOR		
Al Heyworth	49 St.Geo	4936
ASSOCIATE DIRECTOR		
Dave McNaughton	SF143	6281
USER LIAISON OFFICER		
Bill Greene	SF128A	2694
Information Office	SF128	4990 or 4991
ADMINISTRATION MANAGER		
Jerry Palter	SF137	8948
AUTHORIZATION CLERKS		
Nancy Pocock (S/370 + 7094)	SF139	8702
Ann DeFazio (S/370 + 7094)	SF139	8702
Yvonne Bowen (Interactive)	49 St.Geo	8703
Maggie Niemi (TSO)	SF143	5557
S/370 SERVICES		
MANAGER, S/370 SERVICES		
Stan Yagi	SF113	7331
MANAGER, S/370 OPERATIONS		
Derry Cox	SF113	7092
MANAGER, S/370 SOFTWARE		
Rein Mikkor	SF113	5058
SYSTEM HARDWARE SUPERVISOR		
Eugene Siciunas	SF114	4967
PROGRAM ADVISERS	SF117	8599
INTERACTIVE TERMINAL SYSTEMS		
MANAGER		
Sam Goldfarb	49 St.Geo	3787
7094 SERVICES		
MANAGER		
Joyce Walton	BT1207	7094
COMPUTER RESEARCH FACILITY		
ASSISTANT MANAGER		
Dennis Smith	SF214	4086

JOB STATUS QUERIES:

SYSTEM/370	7373
7094	7094

INTERACTIVE TERMINAL SYSTEMS:

System Status	6234
APL	7200
ATS	7100
CPS	6200

TSO:

2741 Terminal Malfunctions	7107
2741	7303
TTY	7390

UTCC COMPUTER EQUIPMENT

SYSTEM/370 MODEL 165

- located in SF103/105/112
- provides General Purpose Job Stream, High Speed Job Stream and TSO services
- 3072K bytes of memory
- 1 drum
- 12 disk drives IBM (3330)
- 8 disk drives IBM (2314)
- 6 magnetic tape drives (4 9-track and 2 7-track)
- 6 display consoles
- 6 printers
- 5 card readers
- 1 card punch
- 7 remote batch terminals
- 1 paper tape reader
- Calcomp plotters (11" and 30")
- Gould plotter (11")
- OS/MVT with HASP

SYSTEM/360 MODEL 65

- located in McLennan Physical Laboratories
- provides Interactive Systems Service
- 1536K bytes of core
- 16 disk drives (2314)
- 2 9-track magnetic tape drives
- 1 printer
- 1 card reader
- 1 card punch
- 140 typewriter terminals
- OS/MVT with APL, ATS, and CPS

7094 II

- located in Room 1203 Burton Tower
- 32K words of core
- 1 disk
- 8 magnetic tape drives
- input/output via a 1401 computer

IBM/360 MODEL 44

- located in SF207
- 256K core
- 10 disk drives (8 2314's and 2 2311's)
- 2 2401 tape drives
- 2 1403 printers
- 2 2501 card readers
- 2701 data adapter
- 2250 video display unit
- RADDTS
- Calcomp microfilm plotter
- minicomputers
- VW01 Digitizing Tablet
- DEC GT40

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